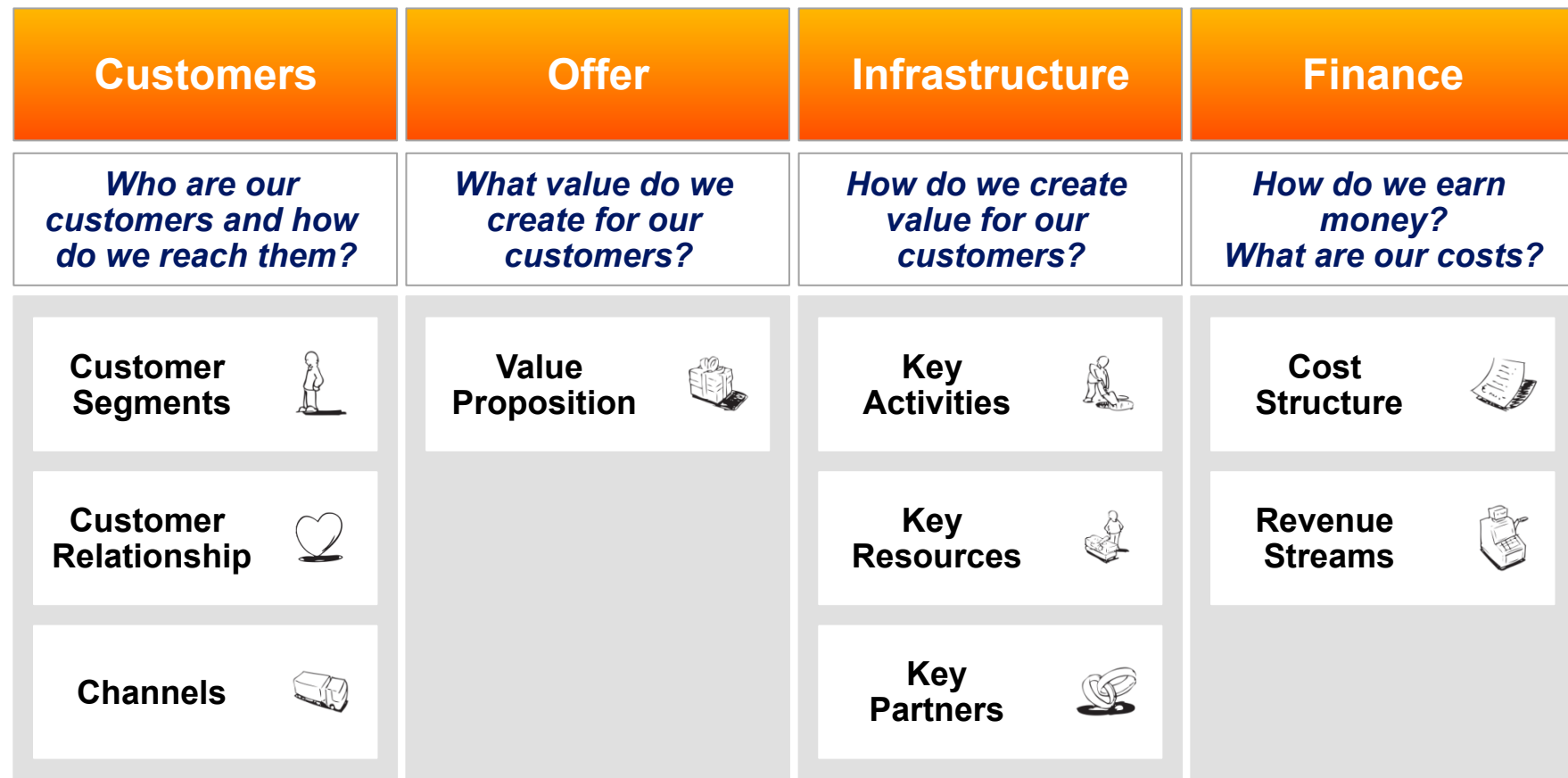


Agenda

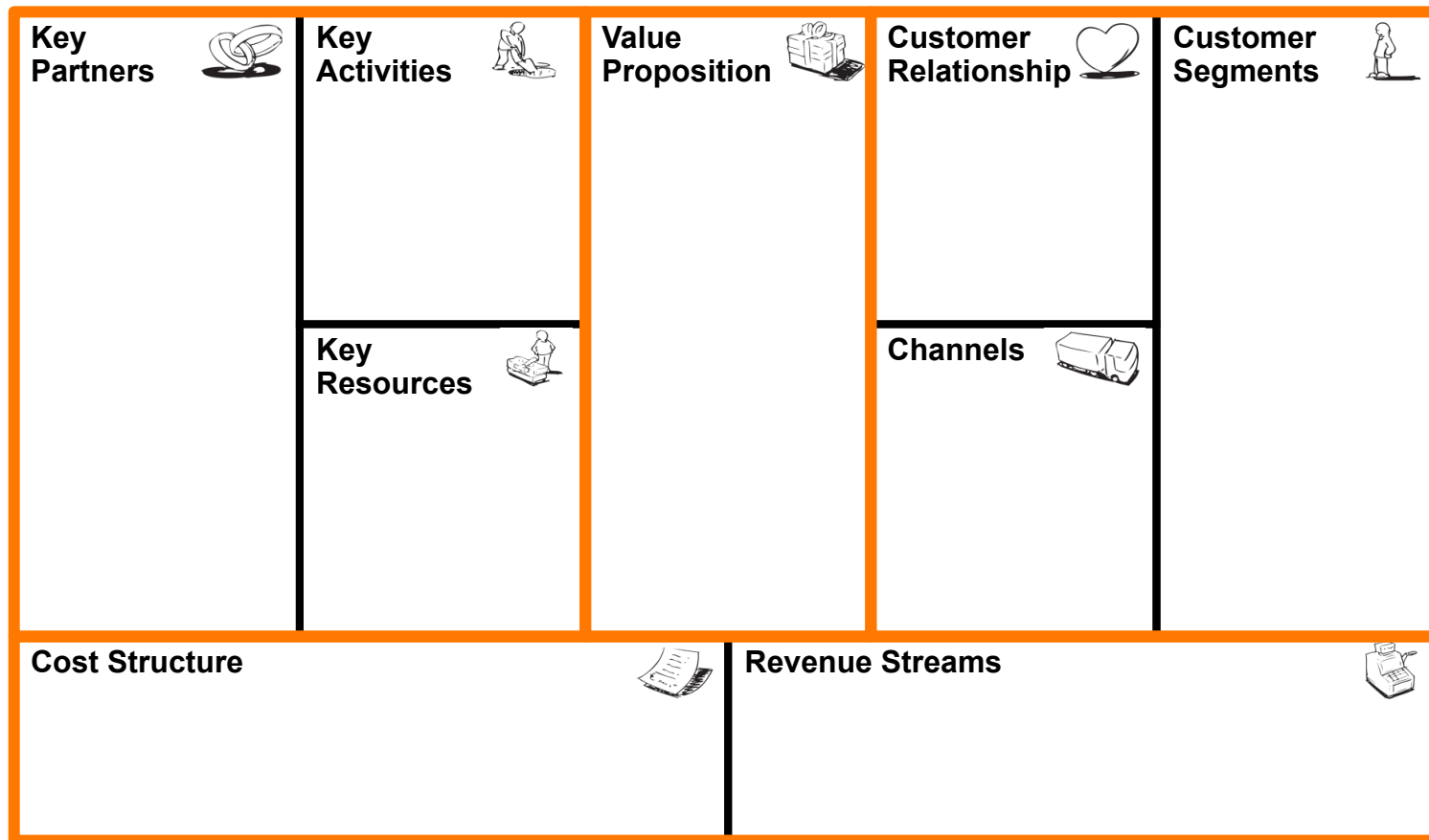
When	What	Who
09:00 – 10:30	Lecture: <i>“Smart energy components and systems: from concept to realization”</i>	Prof. Dr.-Ing. Kai Strunz
10:30 – 10:45	<i>Coffee break</i>	<i>all</i>
10:45 – 11:30	Introduction into business model generation & group work	Sebastian Knab MSc.
11:30 – 13:00	First phase of group work: Development of project idea	all S. Knab
13:00 – 14:00	<i>Lunch</i>	<i>all</i>
14:00 – 14:30	Second phase of group work: Preperation of final presentation	all
14:30 – 15:30	Final presentations and discussions	all Prof. Strunz

What is a business model?

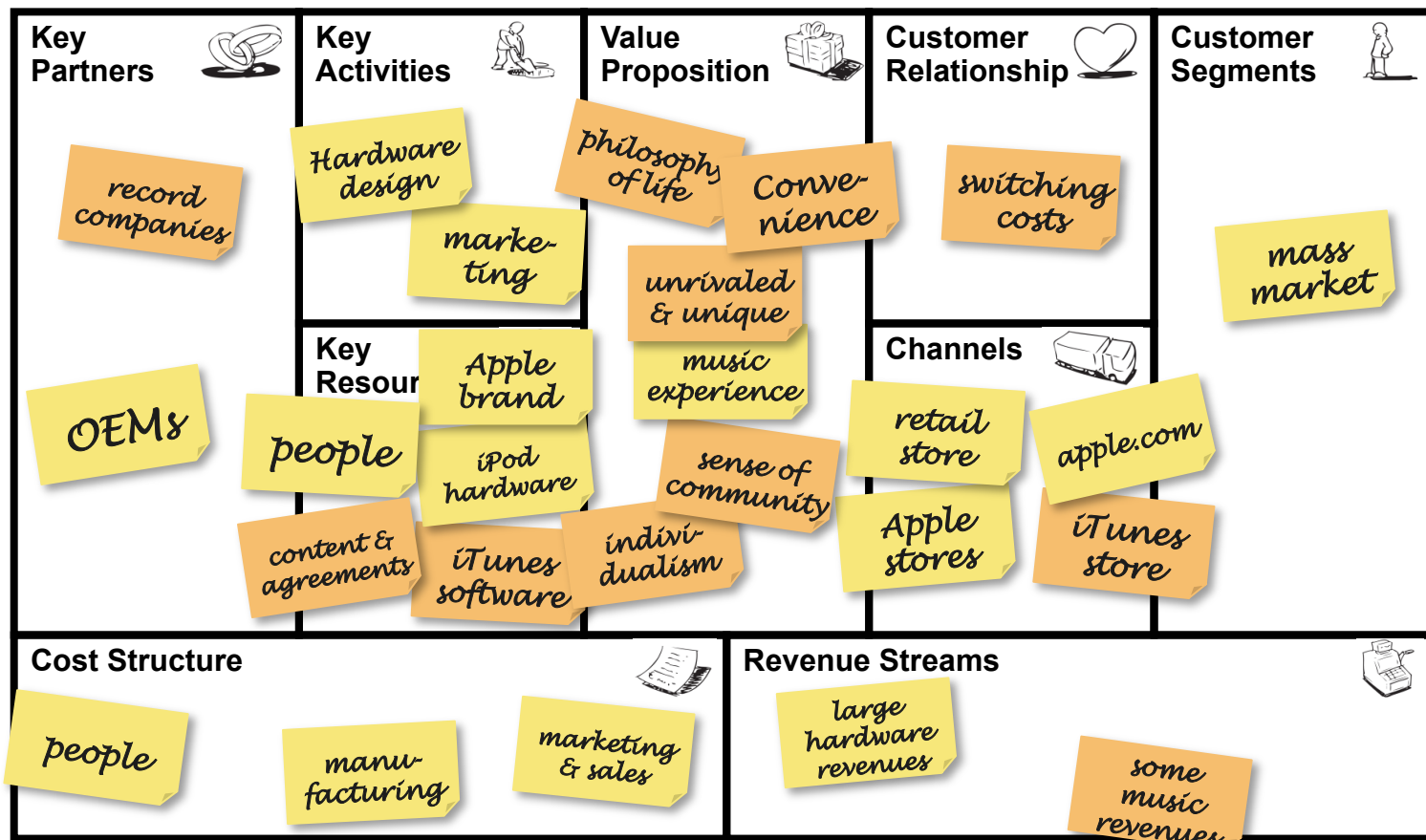


Source: Own figure based on: Osterwalder, A., Pigneur, Y. (2010): Business Model Generation

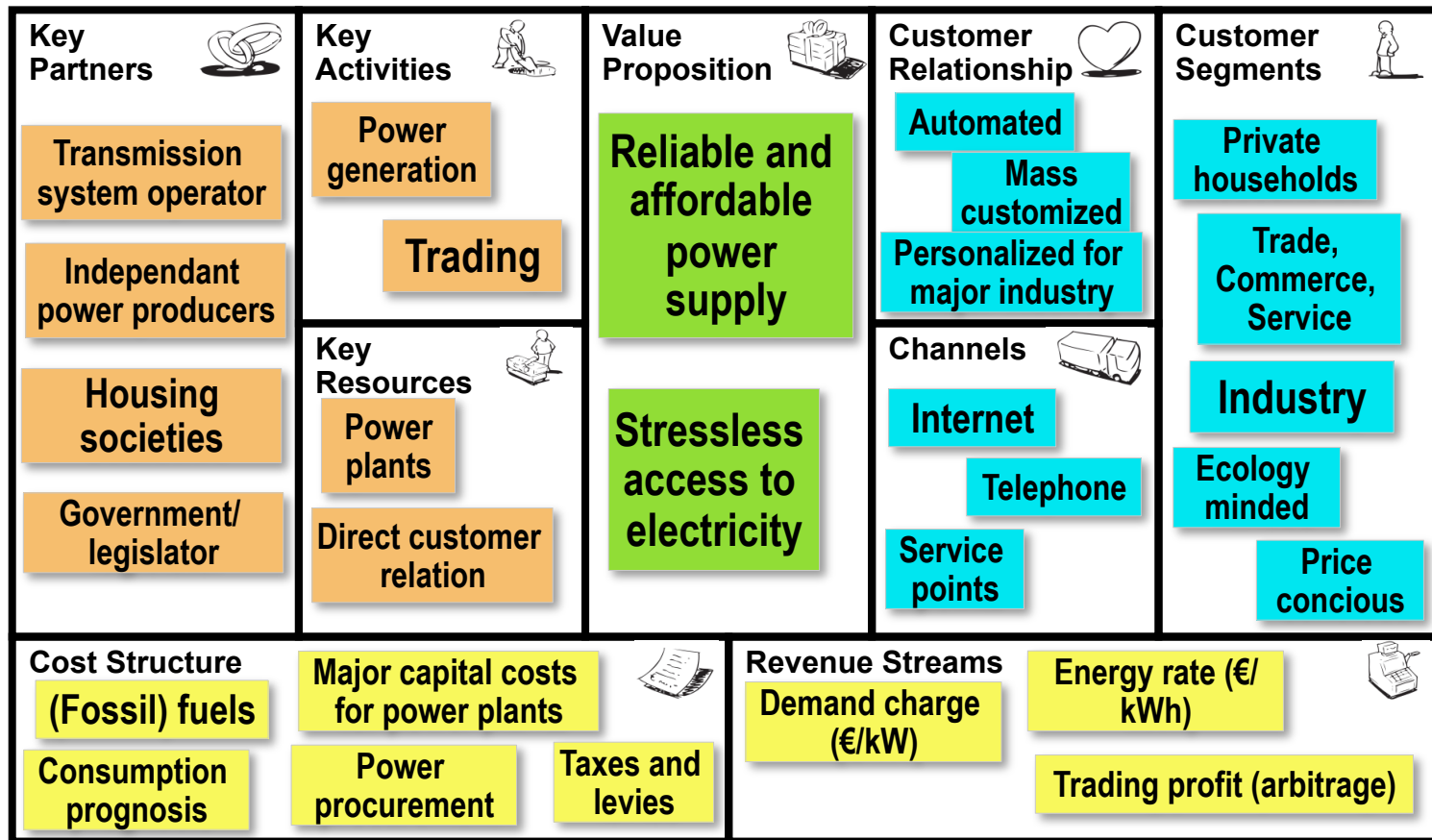
The 9 business model building blocks



Example: Apple iPod/iTunes business model










Example: Traditional business model of an electric utility



Brainstorming von Geschäftsmodellbausteinen



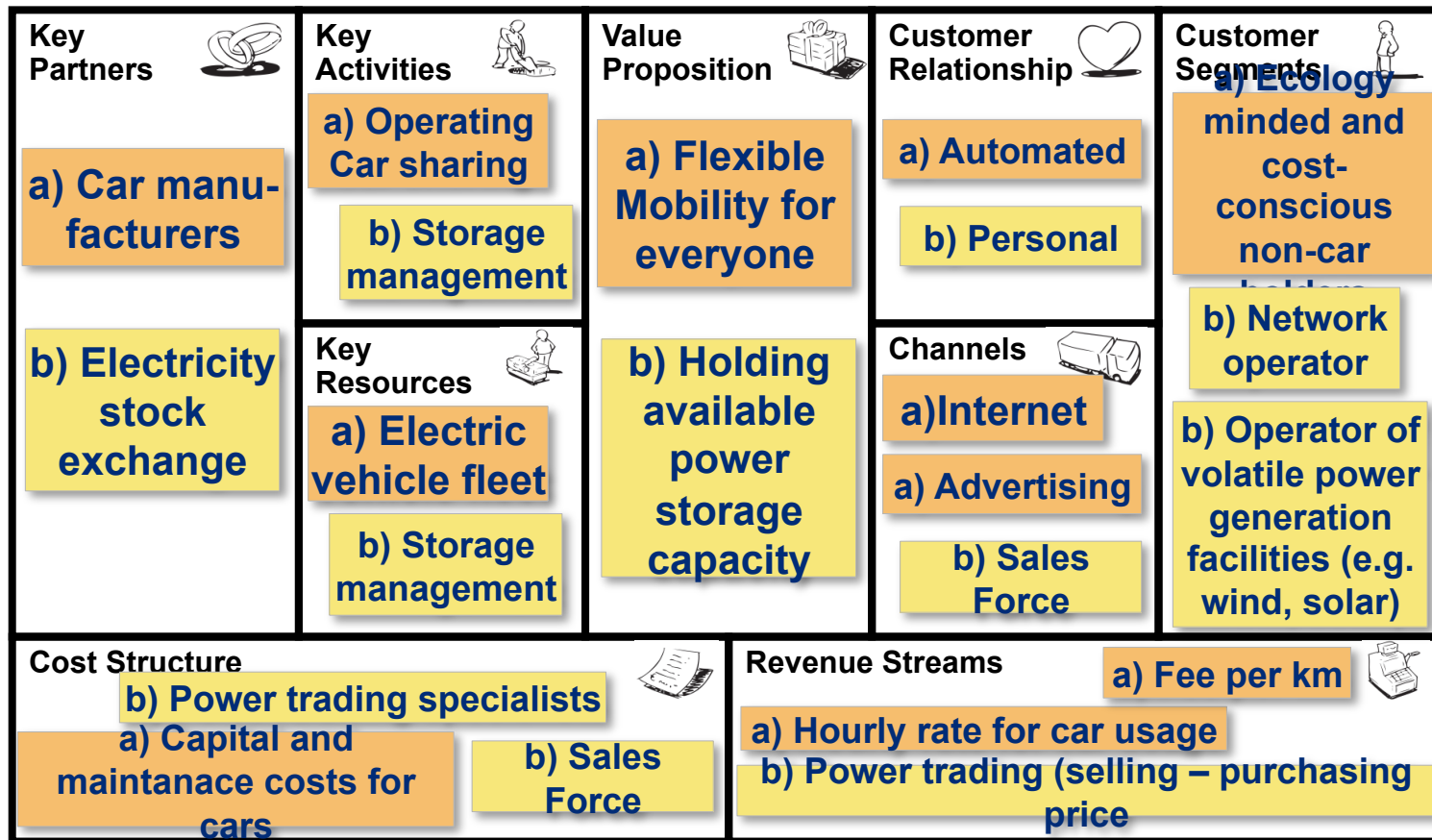
Brainstorming business model building blocks

<h3>Key partners</h3>  <ul style="list-style-type: none">■ Insurances■ Health insurances■ Federal network agency■ International utilities■ Grid stability providers■ Configuration providers (balancing group)■ ICT industry■ Home appliances manufacturers■ Internet service providers■ Owners of storage facilities■ Utilities from other network coverage areas■ Car manufacturers■ Automobil suppliers■ Owners of emergency power generators■ Owners of distributed power generation facilities■ Owners of renewable power generators■ IPPs¹⁾	<h3>Key activities</h3>  <ul style="list-style-type: none">■ Managing and optimizing the partner network■ Operating E-Bike-sharing-fleet■ Selling of effective energy (cooking, heating etc.) instead of kWh■ „First Mover“■ Re-integration of supply chain■ 3rd Party Integration (AAL²⁾, security, surveillance, ...)■ Broker generation/consumption	<h3>Value proposition</h3>  <ul style="list-style-type: none">■ Added value for customers■ Sexy products■ Labeled electricity outlets (electricity mix per outlet)■ Price risk consulting and insurance■ Wireless electricity for public places■ Electricity mix-on-demand■ Generation & load forecast■ Security of supply■ Savings (CO₂, costs)■ Energy & automation - from a single source■ Energy & telephone & TV■ Independence (even from utility)■ „We manage your home“■ „We offer security“■ „Mobile“ electricity with SIM card	<h3>Customer relation</h3>  <ul style="list-style-type: none">■ Online-community („who saves the most electricity“)■ Energy broker as partner■ Online-platform for constant selection of an individual electricity mix	<h3>Customer segments</h3>  <ul style="list-style-type: none">■ Owners of low-energy/ passive houses■ Customer segments according to customer behaviour■ Customers with little time■ Customers in existing buildings■ Customers in new buildings■ Customers interested/ not interested in new technologies■ Environmentally-conscious customers■ Cost-conscious customers■ Owners of emergency power generators■ Customers with own generating facilities■ Status-conscious customers■ „Energy form-conscious“ customers (only nuclear power, only wind power...)■ Poor Customers■ Rich customers■ Seniors
<h3>Cost structure</h3>  <ul style="list-style-type: none">■ Reducing costs for technology■ Ideal technology for products■ Saving costs for network maintenance („self-healing“ networks)■ Cost saving with automated meter reading■ Comprehensive IT infrastructure■ Process optimization (data verification, blocking and reblocking, collection, claims management, vacancy monitoring, meter inspection and maintenance)■ Better utilization/ more efficient operation of power plants		<h3>Revenue generation model</h3>  <ul style="list-style-type: none">■ Supply from one source (heat, electricity, water, gas, internet, telefon, TV)■ Personalization/ individualized tariffs■ Flat-rate-electricity■ Revenues from other energy markets■ Profitable tariffs■ Revenues from CO₂-certificates for efficiency measures■ Trade with power from storage facilities■ Revenues from price spreads/ arbitrage		

1) IPP = Independent Power Producer

2) AAL = Ambient Assisted Living

Business model idea: *Electric Car Sharing Service*



Group Work | Develop a virtual power plant project

Setting

- 8 - 10 students form one **team within an electric utility**
- Half of the team are **engineers at the utility's R&D department** (Technical Group)
- The other half are **business and product developers** at the utility (Business Group)



Extract from a speech of your CEO

*„...our revenues are melting away as **competition in our markets increases**. At the same time soaring fossil fuel prices, EU legislation and the need to tackle climate change force us to **become more cost and energy efficient**.*

*In order to adress these challenges we need to **develop new technologies, products and services** with a strong focus on sustainability. The company's commercial success, however, will depend on the development of **innovative business models...**“*

Group Work | Objective and actions

Objective	Develop a concept for a virtual power plant, present your project idea to your company's executives and convince them to support it!
Deliverables	<p>(1) Business model concept considering the 9 building blocks</p> <p>(2) Specification of technical requirements, e.g.:</p> <ul style="list-style-type: none">▪ Which types of power plants do you want to include and why?▪ Which information and communication technologies are needed?▪ What could your virtual power plant look like (schematic diagram)?▪ What is the annual output/capacity? Other technical specifications? <p>(3) Argumentation how your project is addressing at least one of your company's innovation objectives:</p> <p>Create new revenues Reduce costs Become more energy efficient</p> <p>(4) Project outline including your next steps for the upcoming year, e.g.</p> <ul style="list-style-type: none">▪ Who do you have to talk with? Who do you need to negotiate contracts with?▪ Which competencies and resources do you need (to acquire)?▪ Which support do you need from the government/legislator?▪ Which technologies do you need to develop or buy?▪ What research projects do you need to assign?

Please come in front

Energy experts in this room ☺

- Frank Wilbrink
- Juan Leandro Del Viejo Dominguez
- Andrew Jefferson
- Yuelin Liang
- Gregor Martius
- Katja Halbritter
- Alexander Rybka
- Moritz M. Meenen
- Stephen Caleb Opuni
- Lena Reuster
- Devin Malone
- Stephan Walter

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<http://www.sense.tu-berlin.de/>
<http://www.eict.de/>

Knab, S.; Strunz, K.; Lehmann, H. (2010):

Smart Grid:

The Central Nervous System for Power Supply - New Paradigms, New Challenges, New Services

Download: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1531655



Business model idea: *Virtual Power Plant (VPP)*

